

Founded by Blue Origin, [Club for the Future](#) is a nonprofit with the mission to inspire and mobilize future generations to pursue careers in STEAM (science, technology, engineering, arts, and math) for the benefit of Earth. The Club and its partners are doing this through the Postcards to Space program, providing space-focused lessons and events, and activating ambassadors around the world.

Our Postcards to Space program aims to inspire the next generation of world changers. Anyone can create a postcard, send it to space onboard Blue Origin's New Shepard rocket, and receive it back as a space-flown-keepsake.

This free activity packet is a collection of STEAM and space activities you can use to further inspire students to help invent the future of life in space. Once you complete the activity, students can draw their creations and reflections on a digital or physical postcard and send it to space.

Interested in more lessons and activities? Visit <https://www.clubforfuture.org/lessons> to find free standards aligned lessons and more!

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POSTCARDS TO SPACE

Use any type of paper and art supplies to mail a postcard to space through Club for the Future, which will be returned to you as a space-flown keepsake.

Print the [template](#) or create your own postcard with recycled material. Follow the mailing instructions below.

ADDRESSING YOUR POSTCARD TO SPACE (AND BACK)

01



USE A 4x6" (10x15cm) POSTCARD. NOTECARD OR DOWNLOAD AND PRINT THE TEMPLATE

02



ON ONE SIDE, DRAW OR WRITE YOUR ANSWER FOR WHY YOU THINK EARTH NEEDS SPACE.

03



ON THE OTHER SIDE, WRITE YOUR RETURN ADDRESS AND ADD A STAMP.

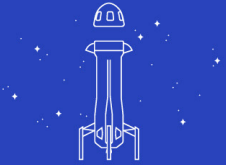
04



Club for the Future
35961 State Highway 54
PO BOX 1552
Van Horn, Texas
79855-1552

PLACE THE POSTCARD IN A STAMPED ENVELOPE ADDRESSED TO CLUB FOR THE FUTURE. IF YOU HAVE MULTIPLE POSTCARDS, PLACE THEM IN A LARGE ENVELOPE OR BOX AND MAIL THEM TO THE CLUB IN BULK.

05



DROP THE ENVELOPE IN THE MAIL. THE CLUB WILL LAUNCH IT TO SPACE ON A BLUE ORIGIN NEW SHEPARD ROCKET AND RETURN IT TO YOU!

Design and send postcards to space from your device. Your digital postcards will journey to space and back aboard Blue Origin's New Shepard rocket on a dedicated hard drive.

Once they have returned from space, you will receive an email with instructions on how to access your postcards.

01

VISIT OUR WEBSITE

Visit draw.clubforfuture.org or scan the QR code to the right to open the digital postcard platform.



02

CREATE YOUR POSTCARD

Follow the activity prompt or any other message you would like to send.



03

SUBMIT YOUR POSTCARD

After you have completed your digital postcard, click the "next" button. Then, enter your first name and email address and click "submit". There are no limitations on how many postcards you can create!



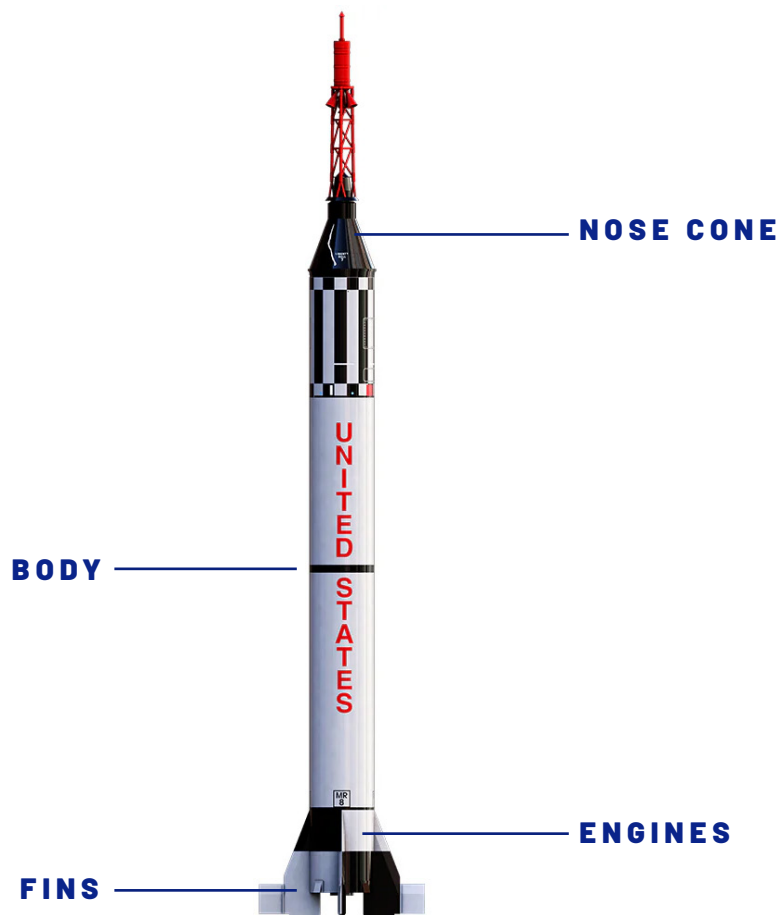


ACTIVITIES FOR ELEMENTARY STUDENTS

INTRODUCTION

Have you ever looked up at the night sky and wondered how people get to the moon or how satellites stay up there taking pictures of our planet? The answer lies in something super cool called a rocket! Rockets are amazing machines that blast off from Earth and zoom into space. They use powerful engines to break free of gravity and carry astronauts, satellites, and even robots to explore places far beyond our reach.

Rockets can come in many different shapes and sizes but they all have four main parts.



Watch these videos to learn more about rockets!

- [How Rockets Work](#) – Recommended for grades K-3
- [Rocket Science: How Rockets Work](#) – A Short and Basic Explanation – Recommended for grades 3-5

ACTIVITY

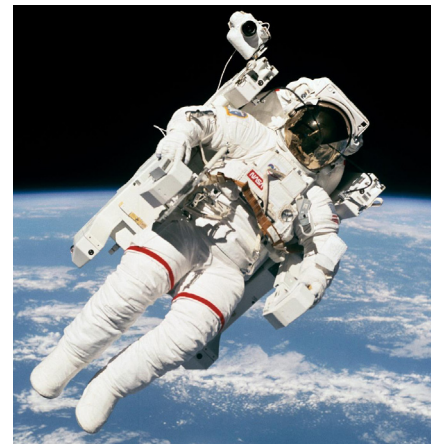
Now it's your turn to design a rocket! What would your rocket look like? Draw your rocket design on a postcard and send it to space. Be sure to label the nose cone, body, engine, and fins of your design. Tell us the name of your rocket and where you would travel on it.

INTRODUCTION

Imagine you'd like to visit a place where the sky is dark all the time, the temperature can swing from freezing cold to boiling hot, and there's no air to breathe. Sounds a bit wild, right? Well, astronauts face these challenges every time they step out into outer space. To help them survive and work in such a harsh environment, they wear special clothing called space suits. These amazing outfits are like tiny, wearable spaceships that protect astronauts from the dangers of space and allow them to do their important jobs. Let's take a closer look at these fascinating suits and discover how they keep astronauts safe and comfortable while they explore the universe!

Space suits are designed to protect astronauts from a variety of harsh conditions they face while in outer space. Here are some of the main things they protect against

1. **Lack of Air:** In space, there is no oxygen to breathe. Space suits supply astronauts with the necessary oxygen to live and work comfortably.
2. **Extreme Temperatures:** Space can be extremely cold or incredibly hot depending on where the sun is. Space suits have special layers of insulation and temperature control systems to keep astronauts at the right temperature.
3. **Radiation:** Space is filled with harmful radiation from the sun and other celestial bodies. Space suits include special materials that help shield astronauts from these dangerous rays.
4. **Micrometeorites and Space Debris:** Tiny bits of rock and debris travel through space at very high speeds and could easily harm an astronaut. Space suits are made with tough, puncture-resistant materials to protect against these threats.
5. **Pressure:** Unlike Earth, space has no atmospheric pressure, which means the human body would not survive unless it's in a pressurized environment. Space suits maintain the right pressure to keep astronauts safe.
6. **Sun's Harmful Rays:** The suit's visor has a special coating to protect the astronaut's eyes from the intense sunlight that can cause damage without the Earth's atmosphere to filter it.



Watch these videos to learn more about space suits:

- [Why Do Astronauts Wear Space Suits](#) – Recommended for grades 2-5

ACTIVITY

It is now time to design your own space suit. You can create any design you want but make sure you include the parts that will let you breathe, communicate with your fellow astronauts, and keep you protected from the harsh conditions of space! Draw your design on postcard and send it to space.

EXTENSION QUESTIONS

- What are the different parts of the spacesuit?
- Why is the spacesuit made in one piece?
- How heavy will the spacesuit feel in space?
- How do you go to the toilet when you are in the spacesuit?

INTRODUCTION

Have you ever wondered what it's like to eat lunch while floating in space? Imagine opening a packet of food and having the pieces just float around you! Astronauts need to eat healthy meals, just like you do, but their unique environment changes the way they eat and drink. Space food needs to be lightweight, long-lasting, and easy to eat without making a mess. Scientists have come up with clever ways to prepare and package food so that it stays tasty and nutritious, even after a long journey in a rocket.



Astronauts from different countries often eat a variety of foods that reflect their cultural and culinary preferences. Since the crew aboard the International Space Station (ISS) are usually international, they bring foods from their home countries, which adds an interesting mix of flavors and dishes to their meals and provides a little more comfort from home. Let's explore the fascinating world of space food and learn how astronauts enjoy their meals among the stars!

Watch these videos to learn more about space food:

- [Chris Hadfield's Space Kitchen - Why tortilla instead of bread?](#) – Recommended for grades 3-5
- ['Space makes eating a lot more fun!' Astronauts explain food prep](#) – Recommended for all ages

Space food must follow these guidelines:

1. **Nutritional Balance:** Space food must provide a balanced diet and be healthy.
2. **Long Shelf Life:** We can't go to the International Space Station (ISS) all the time so space food must be able to last a long time without spoiling. Foods are often freeze-dried or thermostabilized to extend their shelf life.
3. **Lightweight and Compact:** Space is limited in a spacecraft, and every extra pound adds to the launch cost.
4. **Ease of Preparation:** In the microgravity environment of space, simple meal preparation is essential. Foods often come in ready-to-eat packaging or only require the addition of water and minimal effort to prepare.
5. **Minimal Crumbs and Liquids:** Crumbs and free-floating liquids can be hazardous in microgravity by clogging equipment or getting into astronauts' eyes and noses. Thus, foods are designed to be less crumbly and packed in securely sealed containers.
6. **Taste and Variety:** Being far from home can be challenging, so space food must be appetizing and offer variety to maintain the crew's morale and ensure they have a pleasant dining experience.
7. **Rehydration:** Many space foods are freeze-dried and need rehydration. The spacecraft provides special machines to add water to dry food, restoring its texture and flavor.
8. **Packaging:** Space food is packaged in materials that are easy to handle and open in microgravity. The packaging also must be strong enough to survive the launch without rupturing.

ACTIVITY

Based on these guidelines, what food would you like to bring to space if you had to live on the ISS for 6 months or more? What food would bring you comfort? Draw your perfect space meal on a postcard and send it to space.

DESIGN AND BUILD A SPACE HELMET

INTRODUCTION

Have you ever wondered what it would be like to explore the far reaches of outer space? One of the most important pieces of gear for any astronaut is their space helmet. Imagine a super cool, high-tech helmet that not only looks awesome but also helps keep you safe in the harsh environment of space! A space helmet is like a tiny, personal spacecraft for your head. It provides you with oxygen, protection from space debris, protection of your eyes from the sun, and temperature control. The built-in microphones and speakers inside the helmet also allow astronauts to stay in touch with their team members and mission control, even when they are far away from the spacecraft. Let's dive into the fascinating world of space helmets and discover how they help astronauts explore the universe while keeping their heads safe and sound!

Watch these videos to learn more about space suits:

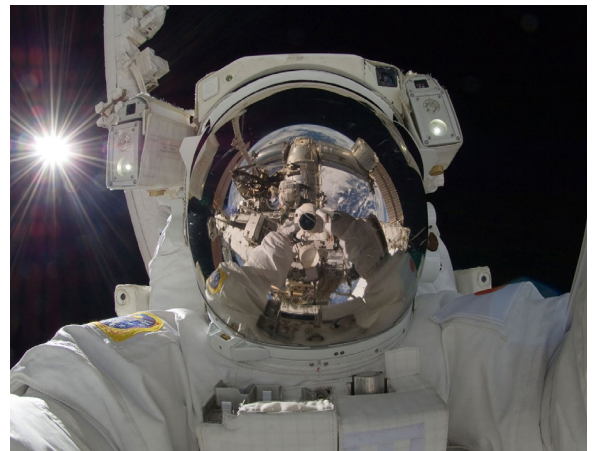
- [Why Do Astronauts Wear Space Suits](#) – Recommended for grades 2-5

ACTIVITY

Now it's your turn to design and build your very own space helmet using the list of materials below. Make sure you test out your helmet and keep fixing it until it works! Be sure to include all the parts of the helmet needed to keep you safe in the harsh conditions of space and let's you communicate with your team. Once you have built your helmet, draw it on a postcard and send it to space!

Materials:

- Cardboard or poster board
- Scissors
- Popsicle stick
- Craft Supplies (markers, crayons, paint, glitter, stickers, tissue paper, colorful tape, etc.)
- Glue or Tape
- Toilet paper and paper towel rolls
- Aluminum foil
- String
- Paper bags



THOUGHT QUESTIONS FOR STUDENTS

- Can you describe what ideas you have for your helmet?
- What materials will you use to build your helmet?
- Tell me about the different parts of your helmet and what they do.
- How will you test your helmet?
- Was there anything you fixed after you tried it on?
- What worked well and what didn't?
- What were some challenges you faced in building your helmet?
- How did you overcome those challenges?

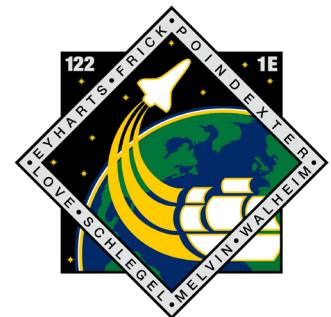
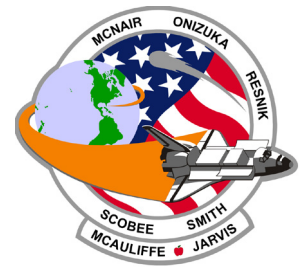
DESIGN A SPACE MISSION PATCH



Have you ever noticed the colorful patches astronauts wear on their space suits? These patches are more than just cool decorations – they tell fascinating stories about space missions! Each patch is like a special badge that represents a particular mission or crew. They often feature unique designs, symbols, and colors that share important information and celebrate the team’s journey. Just like how superheroes have emblems on their costumes, astronauts have patches to show their mission’s identity and achievements. Let’s explore the exciting world of space patches and discover the amazing stories they tell about adventures beyond our planet!

Mission patches are storytelling badges that represent specific space missions and creating them involves careful thought and creativity. Here’s what usually goes into designing a mission patch:

- **Mission Logo:** The centerpiece of the patch is often a unique logo or symbol that represents the mission’s goals or the spacecraft involved.
- **Crew Names:** The names of the astronauts or cosmonauts participating in the mission are often included to honor their roles and contributions. This makes each patch personalized and special.
- **Mission Number and Title:** The patch usually includes the mission number and title.
- **Colors and Flags:** Specific colors and national flags are used to represent the countries involved in the mission. This highlights the international collaboration and unity in space exploration.
- **Symbolism:** Many patches include symbols or icons that have a particular meaning. For example, stars might represent space, and an eagle could symbolize freedom and exploration. These elements help tell the story of the mission.
- **Special Elements:** Unique elements related to the mission’s goals or experiments might be included. For example, a science mission might feature a microscope or a specific planet if it’s a destination.
- **Shape and Size:** While many patches are round or shield-shaped, they can be any shape that fits the design. The shape itself can sometimes have special meaning or add to the artistic representation.



Watch these videos to learn more about mission patches:

- [What’s in a Patch? Astronaut Paul Richards explains the STS-102 Crew Patch](#) – Recommended for grades 3-5
- [Cosmo Art: Astronaut Nicole Stott Explains the STS-133 Crew Patch](#) – Recommended for grades 3-5
- [Make Your Own Astronaut Mission Patch - ISS Science](#) – Recommended for grades K-2

ACTIVITY

It is time for you to design your own mission patch! In groups of three, design and draw your own mission patch. If you were going to space, where would your mission be going to? The ISS? Moon? Another planet? What would you be doing in your mission? All these things should be included in your patch design. Be sure to include your names on your patch! Once you have a design, draw it on a postcard and send it to space!



ACTIVITIES FOR MIDDLE AND HIGH SCHOOL STUDENTS

INTRODUCTION

Have you ever thought about what it would be like to live and work in space? While it sounds thrilling, did you know that being in space can have significant effects on the human body? In the weightless environment of space, our muscles and bones can weaken because they don't work as hard as they do on Earth. That's why astronauts need to exercise regularly to stay strong and healthy while they're floating in orbit. In this activity, we will explore the fascinating world of space exercise. We'll learn about the special equipment astronauts use, the types of workouts they do, and why staying fit is crucial for their missions.

In microgravity, without the continuous load of Earth's gravity, the tissues that make up bones reshape themselves. Bone cells readjust their behaviors—the cells that build new bone slow down, while the cells that break down old or damaged bone tissue keep operating at their normal pace so that breakdown outpaces growth, producing weaker and more brittle bones. For every month in space, astronauts' weight-bearing bones become roughly 1% less dense if they don't take precautions to counter this loss. Muscles, usually activated by simply moving around on Earth, also weaken because they no longer need to work as hard. This loss of bone and muscle is called atrophy.



Astronauts work a variety of muscles in space, including their core, legs, and arms, to maintain strength and prevent muscle loss:

- Core muscles: Astronauts need strong core muscles for spacewalks, maneuvering through modules, and lifting, bending, twisting, and turning.
- Leg muscles: Astronauts use leg muscles for space runs and on the stationary bicycle.
- Arm muscles: Astronauts need strong arm muscles to move and work in space.

Watch these videos to learn more about space exercise:

- [Running in Space!](#) – Recommended for grades 6-12
- [Physical activity in space](#) – Recommended for grades 6-12

ACTIVITY

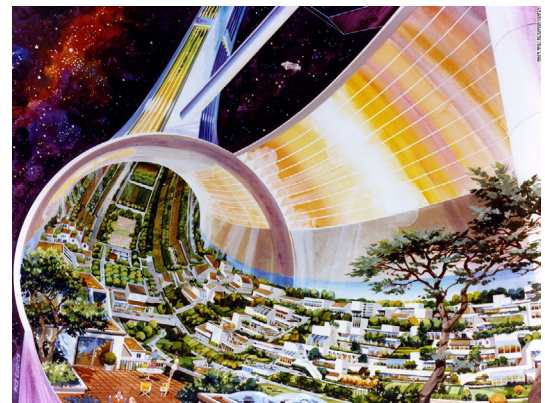
In groups, create your own space exercise that is fun and works at least one of the muscle groups mentioned above. Remember, astronauts are doing this in microgravity so keep that in mind when you think about the equipment needed. Create a demo video on your exercise explaining the benefits of the workout and how to do it in space or present it to the class. Summarize your exercise on a postcard and send it to space!

INTRODUCTION

Imagine a future where millions of people are living and working in space for the benefit of Earth. That is Blue Origin's vision and what they are working towards. People could be living in bustling space colonies, lunar bases, and even cities on Mars! As humanity extends its reach into the cosmos, new opportunities will emerge for innovative entrepreneurs to create and grow businesses that cater to this novel way of life. Whether it's developing advanced space habitats, providing interplanetary transportation, offering entertainment and leisure activities in zero gravity, or mining asteroids for valuable resources, the possibilities are as vast as the universe itself. In this exciting future, starting a space business means not only being a pioneer in a rapidly expanding frontier but also playing a crucial role in shaping the everyday lives of space residents. Let's explore how visionary ideas can turn into successful space enterprises, creating a sustainable and thriving community among the stars!

Watch these videos to learn more about the future of living in space:

- [JEFF BEZZOS ON WHY SPACE BUSINESS IS FUTURE OF ENTREPRENEURSHIP](#) – Recommended for grades 6-12
- [The Future of Human Exploration](#) – Recommended for grades 9-12



ACTIVITY

In groups, create your own space business. For your business to be successful, think about the following:

1. **Identify a Need or Problem:** The best businesses solve a problem or fulfill a need. Start by identifying an issue that people (or in the case of space, astronauts and space colonists) face. The more pressing the need, the more likely there is a market for your solution.
2. **Market Research:** Understand your target market. Who are your potential customers? What do they value? Research existing solutions and identify gaps where your business could provide a unique benefit.
3. **Innovative Idea:** Your idea should be innovative yet practical. Think about what will make your solution different and better than existing options. Innovation can come in the form of new technology, a novel product design, or an improved service offering.
4. **Feasibility:** Consider the practicality of your idea. Can it be realistically developed with current or near-term technology? What resources, skills, and time will you need to bring it to life?
5. **Business Model:** Create a business plan that outlines how your business will make money. This includes pricing strategy, cost structure, revenue streams, and how you'll scale your business.
6. **Competition:** Analyze your competition to understand their strengths and weaknesses. This can provide insights into how you can differentiate your business and what you can do better.
7. **Legal and Regulatory Issues:** Be aware of any legal requirements and regulations that might affect your business. In the context of space, there might be additional considerations related to international space laws and safety standards.
8. **Funding and Resources:** Determine how much funding you will need and where it will come from. Consider your budget for startup costs and ongoing expenses and identify potential investors or funding sources.

- 9. Technology and Innovation:** Especially for a space business, staying at the cutting edge of technology is crucial. Consider how advancements in robotics, AI, materials science, and other fields can be integrated into your business.
- 10. Partnerships and Collaboration:** Look for opportunities to collaborate with other companies, research institutions, or government agencies. Partnerships can provide valuable resources, expertise, and market entry points.
- 11. Marketing and Brand:** Think about how you will promote your business and build your brand. A strong brand helps build trust and attract customers. Consider the channels you'll use to reach your target audience.
- 12. Sustainability:** Consider the environmental and social impacts of your business. Businesses that plan for sustainability are often more resilient and can appeal to a broader customer base.
- 13. Adaptability:** Finally, be ready to adapt. The market and technology landscape can change rapidly, especially in innovative fields like space. Flexibility and a willingness to pivot when necessary can be key to long-term success.

Once you have created your business, create an ad to showcase your new business. Make sure your ad is catered to your target audience. Present your business and ad to the class. At the end, summarize your business on a postcard and send it to space!

Types of ads:

- Brochures
- Magazine and newspaper ads
- Online advertisements (display, etc.)
- Websites
- Videos

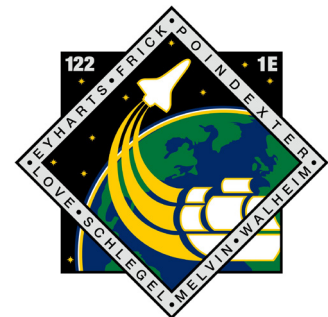
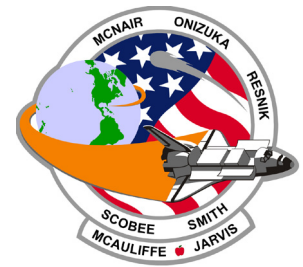
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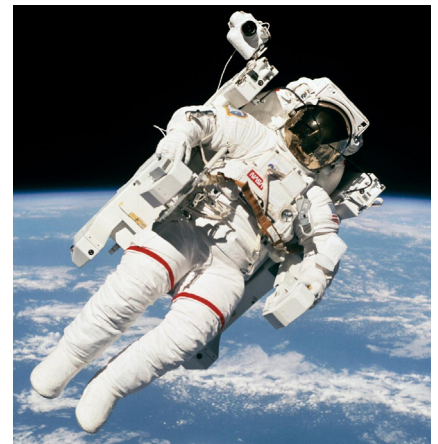
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Watch these videos to learn more about space suits:

- [Spacesuit | HOW TO BUILD... EVERYTHING](#) – Recommended for grades 6-12
- [How Do Spacesuits Work? | How To Build Everything](#)– Recommended for grades 6-12
- [NASA's Next-Generation Spacesuits – A Behind-The-Scenes Look](#)– Recommended for grades 6-12

ACTIVITY

It is now time to design your own space suit. You can create any design you want but make sure you include the parts that will let you breathe, communicate with your fellow astronauts, and keep you protected from the harsh conditions of space! Draw your design on postcard and send it to space.

INTRODUCTION

Have you ever dreamed of designing a space vehicle that could transport people between space stations, moons, or even distant planets? This is one of the most thrilling and complex challenges in aerospace engineering. Creating such a vehicle requires a blend of cutting-edge technology, innovative design, and a deep understanding of the harsh conditions of outer space. Imagine building a craft that can safely carry astronauts from the International Space Station to the moon, or from Mars to a distant space colony. To make this dream a reality, you'll need to think about a range of fascinating engineering challenges: propulsion systems, life support, navigation, and more. Let's explore some of these ideas.

Creating space vehicles that can transport astronauts from one location to another in space presents numerous challenges. These challenges span various domains, including engineering, physics, human factors, and financial considerations. Here are some of the key challenges:

1. **Propulsion Systems:** Developing propulsion systems that are efficient and powerful enough to travel long distances in space. Traditional chemical rockets have limitations in terms of fuel efficiency for long-duration missions.
2. **Life Support Systems:**
 - **Sustainability:** Providing a life support system that can sustain astronauts over long periods, which includes the recycling of air, water, and waste.
 - **Health:** Ensuring the health and well-being of astronauts, including protection against radiation, zero-gravity effects on the human body, and psychological impacts of long-duration missions.
3. **Radiation Protection:**
 - **Shielding:** Developing effective shielding to protect astronauts from cosmic rays and solar radiation, especially on long missions outside of the Earth's magnetosphere.
 - **Material Science:** Creating materials and designs that can offer sufficient protection without adding excessive weight to the spacecraft.
4. **Structural Integrity:**
 - **Durability:** Ensuring the spacecraft can withstand the harsh conditions of space travel, including extreme temperatures, micro-meteoroid impacts, and long-term exposure to the space environment.
 - **Lightweight Materials:** Using materials that are strong yet lightweight to optimize the spacecraft's mass.
5. **Navigation and Communication:**
 - **Precision:** Developing precise navigation systems to ensure accurate travel between destinations, considering the vast distances and high velocities involved.
 - **Delayed Communication:** Managing communication delays caused by the vast distances, especially for missions to distant planets or other celestial bodies.
6. **Energy Supply:**
 - **Power Generation:** Ensuring a reliable power source for the duration of the mission, which could involve solar panels, nuclear reactors, or other means. The power and fuel needed must also be



able to come space and not Earth.

- **Storage:** Efficiently storing energy for use during periods when the spacecraft cannot generate its own power.

7. Thermal Management:

- **Heat Regulation:** Managing the spacecraft's temperature, which involves dissipating excess heat from equipment and maintaining livable conditions for astronauts.

8. In-Situ Resource Utilization (ISRU):

- **Resource Harvesting:** Developing technologies to utilize resources found on other planets or moons to support long-term missions, such as extracting water or producing fuel.

9. Mission Planning:

- **Trajectory Calculations:** Calculating optimal travel trajectories that minimize fuel consumption and travel time while maximizing safety.
- **Contingency Planning:** Preparing for unforeseen circumstances and having plans in place for emergency scenarios.

ACTIVITY

In groups, design your own space vehicle. You might have to do some research around the barriers of space transportation, materials suitable for space vehicles, and energy and fuel options. Once you have done your research, design a vehicle that can take you from one point in space to another. This could mean from one space station to another, one station to a moon or planet, or one moon or planet to another. This means your vehicle needs to be able to dock at stations as well as land on different surfaces. Make a design poster of your vehicle and label the parts of your vehicle and explain how it address the barriers outlined above. Present your vehicle to the class. As an extension, build a model of your vehicle using materials found around the house or classroom. Afterwards, draw your vehicle on a postcard and send it to space!

INTRODUCTION

Water is one of the most important resources for life. Here on Earth, we often take it for granted – we can easily get a glass of water from the tap whenever we're thirsty. But imagine being an astronaut orbiting hundreds of miles above our planet. In space, every drop of water is precious, and there's no tap to turn on. Transporting water from Earth to the ISS is incredibly expensive and impractical due to the limited cargo space and the high cost of launching supplies. To address this, astronauts rely heavily on advanced water recycling and filtration systems. These systems can recycle water from various sources, including sweat, urine, and even the moisture in the air. This may sound a bit unappealing at first, but modern technology ensures that the water becomes as clean and safe as what you drink every day at home. Let's embark on this journey to understand the vital role of water purification in space exploration!

Watch these videos to learn more about how water is filtered on the space station:

- [Water Recycling on the ISS](#) – Recommended for grades 6-12
- [Space Station Living: Turning Urine into Drinking Water and Recycling Air](#) – Recommended for grades 6-12

ACTIVITY

Your challenge is to create a filtration system that creates the "cleanest" water. Work in groups to create a filtering system with the materials given. You only have 10 minutes to complete this challenge. The group with the clearest water is the winner.

Materials:

- Empty plastic water bottles (used for filtering)
- Clear plastic cup to filter into
- Clean rocks of all sizes
- Clean sand
- Coffee filters
- Cloth or cheese cloth
- Marbles



Make the dirty water

- Give each group a cup of the dirty water
- Dirty water can be made by mixing water with sticks, little rocks, dirt, lemonade, etc

Reflection:

- The filtration system on the space station reclaims 93% of the water onboard. Every drop counts! How much water was your team able to conserve?
- What was your filter good at filtering out?
- What couldn't it get rid of?
- What would you do differently next time?

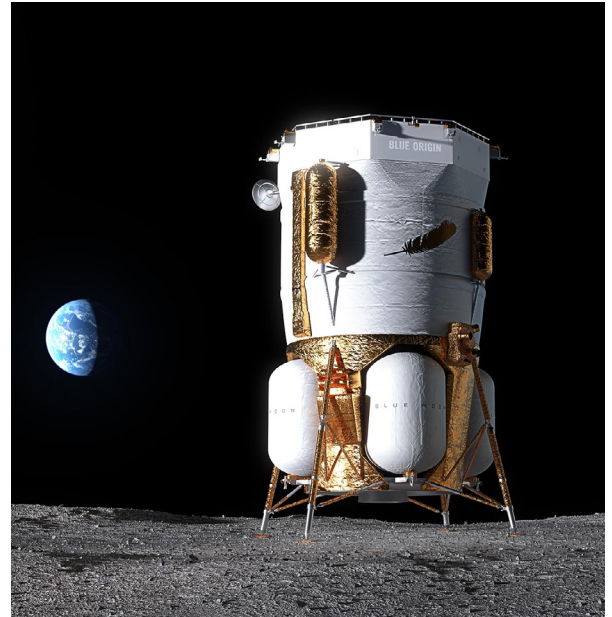
Draw your filtration set up and answer the reflection questions on a postcard and send it to space!

INTRODUCTION

Since Neil Armstrong and Buzz Aldrin first set foot on the Moon in 1969, humanity has dreamed of returning and staying for longer periods. A key component of making this dream a reality is the creation of an effective, safe, and reliable moon lander. The lander is a crucial piece of technology that allows astronauts to travel from their orbiting spacecraft to the Moon's surface and back safely.

Designing a moon lander involves solving a variety of complex problems:

1. **Safe Landing:** Ensuring the lander can touch down gently on the Moon's uneven and rocky surface without tipping over or damaging its structure.
2. **Sufficient Propulsion:** The moon has no atmosphere so your vehicle must provide enough thrust to control descent and later launch back to an orbiting spacecraft.
3. **Life Support Systems:** Equipping the lander with essentials like oxygen, temperature control, and other systems to keep astronauts safe and healthy.
4. **Resource Management:** Managing weight and resources efficiently. Every kilogram of material carried to the Moon requires significant fuel and cost.
5. **Energy Supply:** Providing reliable power sources, possibly through solar panels or other means, to operate all systems and support human life.



Watch these videos to learn more about living on other planets:

- [How are we going to the moon? Artemis](#) – Recommended for grades 6-12
- [Why is it so hard to land on the moon?](#) – Recommended for grades 6-12
- [Airbus Foundation Discovery Space: Landing on the moon](#) – Recommended for grades 6-12

ACTIVITY

Design a lunar lander that can safely land on the moon. Think about the challenges outlined above. How will your lander overcome those challenges? What will it use as fuel? How will it keep astronauts safe and provide them with oxygen and food? Draw your design and make sure you label all the components of the lander. Present that to your class. As an extension, build a model of your lander out of materials you find around the classroom or home. At the end, draw your lunar lander on a postcard and send it to space!